

hurricanesolar

# PORTABLE CAMPING PANEL Operation Manual

Folding

120W · 160W · 180W

Kit



[www.hurricanesolar.com.au](http://www.hurricanesolar.com.au) Ph 1300 627 765



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# Solar Camping Panel

Suitable for

- Caravan/Motorhome
- Camping
- Farm Charger
- 12V fridges
- Lights
- TV's & DVD's
- Inverters to run 240V appliances
- Set up anywhere
- Easy to Use
- Ready to Go



Solar Panel

Regulators



120W Kit  
Solar Regulator



160W/180W Kit  
Solar Regulator

## Kit Inclusions

- 1 x Folding Solar Panel -  
(Pre Wired and Ready To Go)
- 12/24V DC Regulator & Solar Charger
- 5m Cable with Anderson style connectors
- Hurricane Solar heavy duty carry bag
- Operation Manual



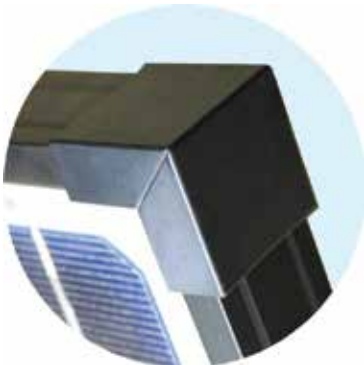
Battery Cable

**All of our folding/portable solar panel kits  
are for 12V battery charging.**

# Features

- A Grade High Quality Monocrystalline Cells
- 12/24V DC Regulator & Solar Charger
- Panels tested to meet Australian conditions & certifications
- Water Resistant Regulator
- Aluminum Stand 2 x (Each Panel)
- Aluminum Frame with Reinforced Corners
- Pre Wired Nothing to Buy
- Night Light Option
- Easily Portable Folding Solar Power System
- Heavy Duty Carry Bag/Case\*

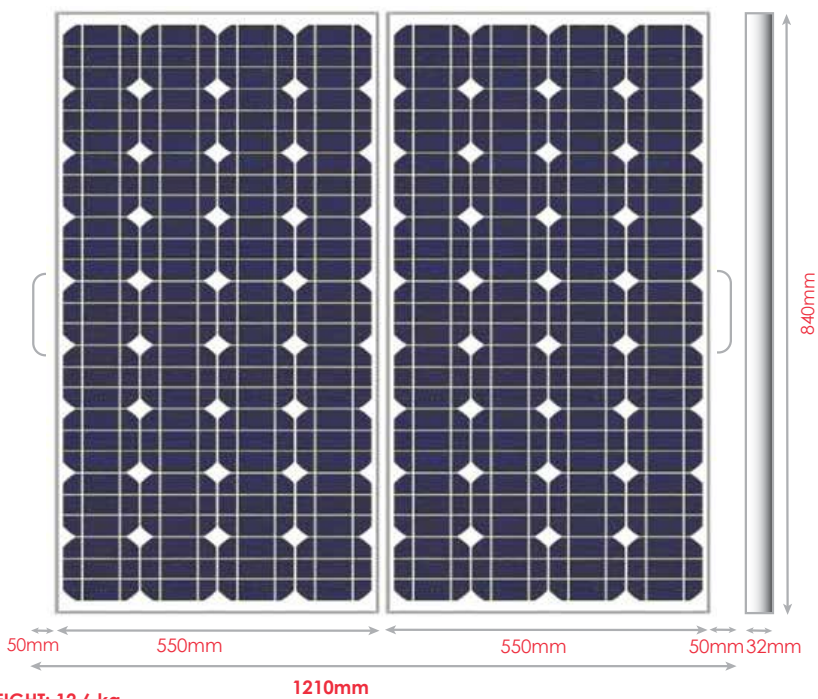
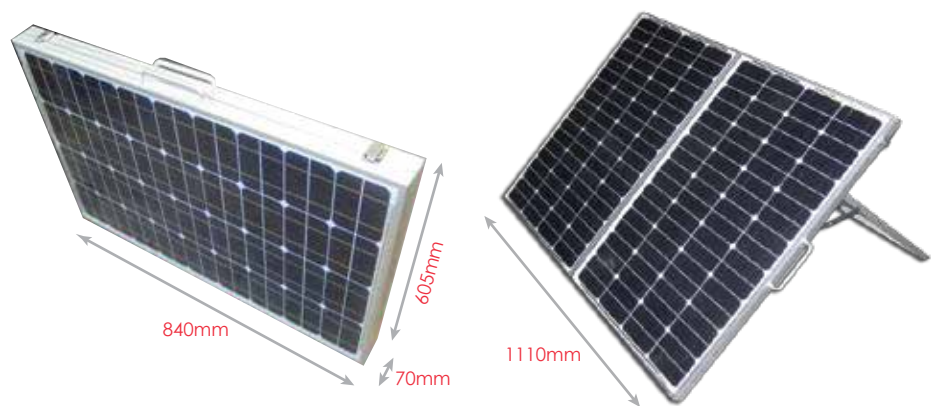
\* Some models may vary





# 120W Camping Panel Measurements

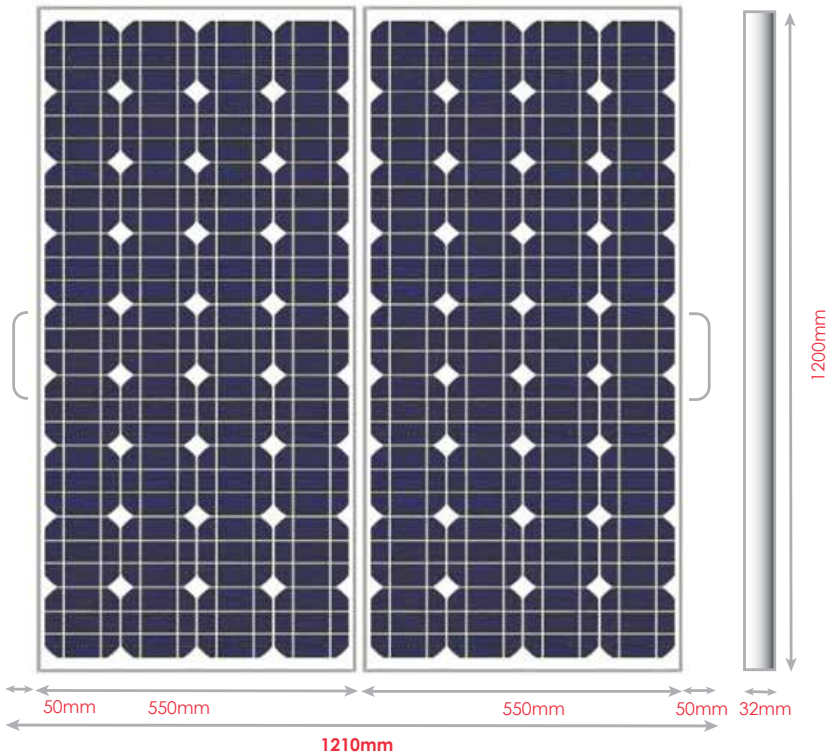
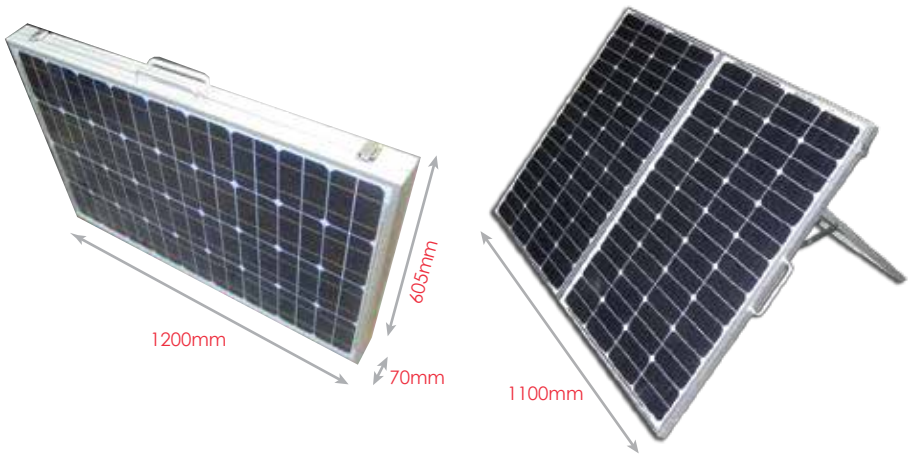
(available in Black & Silver)



TOTAL WEIGHT: 12.6 kg

# 160W/180W Camping Panel Measurements

(available in Black & Silver)



# Solar Panel Specifications

The Hurricane Solar Camping Panel comes in 120W/160W/180W. Please see chart below for panel specifications.

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By Marsol Ind.  
Ph: 1300 627 765  
www.Hurricanesolar.com.au






Model: HSC-120D (± 3% TOLERANCE IN MODULE EFFICIENCY)


PMAX (W) 120W

System:	12 V	24 V
Vmp:	18 V	36 V
Imp:	6.7 A	3.4 A
Voc:	22 V	45 V
Isc:	6.8 A	3.6 A

Maximum System Voltage	DC 1000V
Module Application	Class A
Over Current Rating	10 A

All technical data at standard test condition (E = 1000 W/m²  
Tc = 25°C AM = 1.5)





**WARNING: Electrical Hazard**  
Module produces electricity when exposed to light.  
Follow all applicable electrical safety precautions.  
Only qualified personnel should install or perform maintenance work on modules.  
Be aware of the dangerous high DC voltage when connecting modules.  
Do not damage or scratch the rear surface of modules.  
Do not handle or install module when wet.

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Model: HSC-160D (± 3% TOLERANCE IN MODULE EFFICIENCY)


PMAX (W) 160W

System:	12 V	24 V
Vmp:	18 V	36 V
Imp:	8.8 A	4.5 A
Voc:	22 V	45 V
Isc:	8.9 A	4.6 A

Maximum System Voltage	DC 1000V
Module Application	Class A
Over Current Rating	10 A

All technical data at standard test condition (E = 1000 W/m²  
Tc = 25°C AM = 1.5)





**WARNING: Electrical Hazard**  
Module produces electricity when exposed to light.  
Follow all applicable electrical safety precautions.  
Only qualified personnel should install or perform maintenance work on modules.  
Be aware of the dangerous high DC voltage when connecting modules.  
Do not damage or scratch the rear surface of modules.  
Do not handle or install module when wet.

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Model: HSC-180D (± 3% TOLERANCE IN MODULE EFFICIENCY)


PMAX (W) 180W

System:	12 V	24 V
Vmp:	18 V	36 V
Imp:	10 A	5 A
Voc:	22 V	45 V
Isc:	10.2 A	5.1 A

Maximum System Voltage	DC 1000V
Module Application	Class A
Over Current Rating	10 A

All technical data at standard test condition (E = 1000 W/m²  
Tc = 25°C AM = 1.5)





**WARNING: Electrical Hazard**  
Module produces electricity when exposed to light.  
Follow all applicable electrical safety precautions.  
Only qualified personnel should install or perform maintenance work on modules.  
Be aware of the dangerous high DC voltage when connecting modules.  
Do not damage or scratch the rear surface of modules.  
Do not handle or install module when wet.





## Regulator Specifications

The Hurricane Solar Camping Panel comes in 120W/160W/180W please see chart below for individual regulator specifications.

<b>Regulator Specifications</b>	<b>120W</b>	<b>160W / 180W</b>
Rated voltage	12 v, 24 v auto	
Minimum Voltage Input	14.8V/29.6V	17V/34V
Bulk Charge Voltage	14.5V/29V	14.5V/29V
Float Voltage	13.7V/27.4V	14.1V/28.2V
Low Voltage Disconnect	10.8V/21.6	10.8V/21.6
High Voltage Disconnect	16V/32V	16V/32V
Maximum charge current	10A	20A
Maximum load current	10A	20A
Controller protect	overcharge,overdischarge overcurrent, short - circuit,reversed	
Charging Algorithm	PWM	
Working temperature	-40-60 °C	-20-50 °C
Weight (gross)	200g	
Product size	120*78*35mm	86*120*41mm

Note: Marsol Industries recommend that this unit is not left in wet conditions.

# Installation & Usage

The solar panels charge the battery which then powers your appliances . The solar panels will charge a battery while it is in the sun and stop when the battery is fully charged. If you appliances draw more power than the solar panel can make it will not be able to completely charge your battery. This type of unit is commonly used to run 12V fridges, lights , TV's, DVD players, mp3 players and inverters to run 240V appliances. Hurricane Solar comes preinstalled with 1 12V/24V solar regulator. All the wiring and connectors have been quality checked. Upon positioning the solar panel the LED state of the regulator will match the charge and discharge state of the battery. The Hurricane Solar regulator will supply consistant protection functions for the battery & electrical appliances. The controller can be used for a variety of purposes such as lights, farm pumps, camping fridges etc.

## Start-up & Installation: **IMPORTANT SETUP NOTE!**

To ensure your regulator correctly detects your battery voltage, panel should be placed face down or covered to block light. Battery load should then be connected to regulator prior to operation.

**Warning: Failure to follow this procedure may void panel and regulator warranty, and potentially harm your battery.**

## Regulator:

The regulator converts the power created by your solar panel into a compatible power supply suitable for your battery. It also controls the charge that is put into your battery. The regulator will stop charging your battery when the battery is fully charged.

It then waits until your battery drops below preset voltages and then starts charging your battery again. Hurricane Solar Kit regulators have a load facility which allows you to hook appliances direct to the regulator (such as lights) if required.

## 120W Camping Panel Regulator

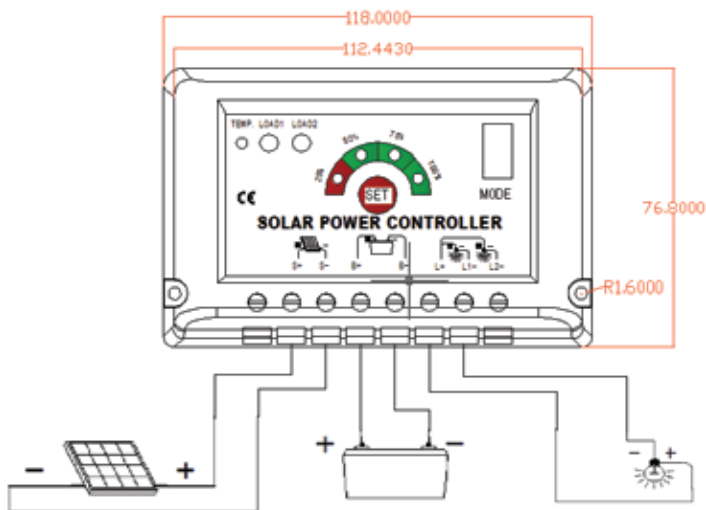


### I. Overview

The product is the new generation of intelligent solar charge and discharge controller, it has strong stability and high service life. This series is 12V/24V automatic identification, with automatic detection battery voltage function, pwm charging way and comprehensive protection function: overcharge, over-discharge, over-current, short-circuit, reversed.

Functions:

- 1. The controller has household type and street lamp type in the design.
- 2. The controller has 12V, 24V auto identification of the design.
- 3. The controller has light control and time control (street lamp type).
- 4. The controller has the overcharge, discharge, over current, short circuit, answer back and protective measures.
- 5. The controller has the power-down protection, it means the controller can auto save the parameters we set before when there no power.
- 6. With the Strong charging and equilibrium charging, floating three-step PWM control charging ways.



Status Indicator

LED Lamp	Indicator	State	Function
Load	Load lamp (Green Led)	Long bright	load terminal has output
		Long out	load terminal no output
Battery	Battery indicator (Four red Led)	Long bright (Or some of the long light)	Battery power (25%-100%)
		Move scintillation	Charging state (panel pressure voltage is greater than the battery)

# 160W - 180W Camping Panel Regulator

## I. Characteristics:



- Uses MCU, making its Intelligent Control more efficient, more stable.
- Uses high-efficiency PWM serial charging.
- 4 working modes to control the output
- LCD clearly indicates Working Status
- Can set parameters and working modes according to different working conditions.
- Alarms and protections.
- Powerful TVS used for thunder arresting

## Layout & Functions:

### ELECTROMAGNET

4 Control modes are optional, the default is manual model.

- Light Switch Mode (Default Mode)
- Light Control Open/Timing Closure Mode
- Timer Switch Mode
- Manual Mode

**NOTE:** The time mode of KC9 is "24 hours". Any set needs to be according to the time shown on the LCD. When Time mode turned off, loads won't be powered until Lighting Control works again after on daytime. If the turn-off time is set before current time, KC9 cannot power the loads until next set time.

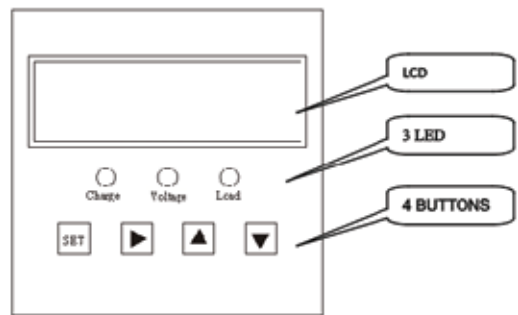


Diagram 1 Operation Panel

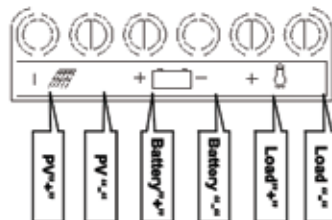


Diagram 2 Terminal Blocks

### BATTERY CHARGE MANAGEMENT

Management procedures

- Precharge
- Current-limiting charging
- Voltage Limit (Battery Voltage Less than Set Value)
- Advance Charging, Float Charge according to different initial Status of Batteries.

**NOTE:** Efficient PWM mode keeps batteries working at the best status greatly extending working life.

## **PROTECTION and ALARM**

- Overcharge Protection
- Over discharge (Low Bat) Protection
- Overvoltage Protection
- Batteries Reverse Polarity Protection
- Modules Reverse Polarity Protection
- Overload Protection

## Regulator Indicator LEDs

1. **"Voltage"**  
2-color LED means battery voltage is under normal scope.  
Battery voltage gets lower when LED turns red and flashes, under a status of low voltage alarm.  
Low voltage protection starts when LED keeps red.  
Battery voltage gets higher when LED turns yellow and flashes under a status of high voltage alarm. High voltage protection starts when LED keeps yellow.
2. **"Charge"**  
2-color LED means battery is being charged, charging current works.  
Fully charges when LED turns green.
3. **"LOAD"**  
Green LED means output voltage is normal on the output terminal of KC9.  
No output voltage from output terminal of KC9 when LED turns off.  
Red LED flash means the output be on overload alarm, should reduce loads.  
KC9 is under protection status when red LED keep flash.
4. **"FUSE BURNOUT INDICATE"**  
There's a LED inside KC9 indicates the fuse burnout when it turns on.

## Regulator Warranty & Service

One year warranty.

NB. is void if the damage is caused by improper operation or unauthorised servicing.

**For full operating instructions for your LCD solar panel regulator please see the separate operating manual or download online at [www.marsol.com.au](http://www.marsol.com.au)**



# Maintenance & General Information

## **Cleaning Panels**

Use warm water and a soft sponge or cloth to clean your panel and try and keep your regulator dry.

## **Will hail hurt my solar panel?**

Small hail will not be a problem. Large hail stones could cause damage. All glass used in solar panels is toughened & factory tested to Australian Standards.

## **Do solar panel systems make any noise?**

NO they are noise silent and you can use them in all National Parks.

## **Can I attach a mount to the frame of the solar panel?**

The solar panels come with a very sturdy aluminum frame. You can screw or pop rivet into this frame. But please ensure when drilling the mounting holes you do not hit the solar cells or backing.

## **Will dirty glass on my solar panel reduce the power it creates?**

Yes. Keep the glass area of your solar panel as clean as possible. All dirty marks or films on the glass surface will reduce it's efficiency. Keep it free from bird and bat dropping's as they may permanently mark the glass surface. Clean with a moist soft cloth.

## **What can I run with a solar panel?**

The solar panels charge the battery your appliances are running from. It depends on the size and condition of the battery your panels will be connected to.

The solar panels will charge a battery while it is in the sun and stop when the battery is fully charged. If you appliances draw more power than the Solar panel can make it will not be able to completely charge your battery.

# Warranty & Repairs

## Customer Service Policy

Hurricane Solar is committed to providing exceptional customer service and quality products. Our products meet all government and international regulations.

## Warranty

Hurricane Solar products come with a 25 year warranty including:

5 Year Limited Product Warranty (Frame)  
10 years power output at 90% efficiency  
25 years power output at 80% efficiency

## Repairs

For repairs please contact Hurricane Solar directly on 1300 627 765 or contact us via our website at [www.hurricanesolar.com.au](http://www.hurricanesolar.com.au)

## Exchange Service

You can choose between a refund, exchange or credit where goods are faulty or doesn't do what it is supposed to do. We will exchange faulty products and liaise directly with manufacturer on behalf of our customers.

**NB. All warranties and guarantees are void if the panel inefficiency or damage is caused by improper operation or unauthorised servicing.**



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Folding

120W · 160W · 180W

Kit



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